

What is claimed is:

1 1. A method for producing a high brightness luminescent material which is
2 composed of a matrix substance which contains aluminate and a luminescent center
3 which is a rare earth metal ion and/or transition metal ion, comprising:

4 a step for making an acidic solution of a solution of a water-based solvent
5 containing aluminum alcoholate which is raw material for aluminate and a metal
6 compound of a rare earth metal and/or transition metal which is raw material for said
7 luminescent center;

8 a step for conducting a preliminary calcination of said acidic solution by heating
9 to 900 degrees C – 1100 degrees C under oxidizing conditions; and

10 a step for conducting a main calcination in which calcination product obtained
11 from said preliminary calcination is pulverized, and under reducing conditions, main
12 calcination is conducted by heating to a temperature higher than the heating temperature
13 of said preliminary calcination.

1 2. A method for producing a high brightness luminescent material as described in
2 Claim 1, wherein:

3 pH of said acidic solution is between 1 and 7, inclusive.

1 3. A method for producing a high brightness luminescent material as described in
2 Claim 1 or 2, wherein:

3 calcination temperature of said main calcination is 1400 degrees C to 1600
4 degrees C, inclusive.

1 4. A method for producing a high brightness luminescent material as described in
2 one of Claims 1-3, wherein:

3 said metal compound is a nitrate.

1 5. A method for producing a high brightness luminescent material as described in
2 one of Claims 1-4, wherein:

3 said luminescent center contains at least one type of metal selected from the group
4 consisting of Eu, Pm, Pr, Yb, Ce, Nd, Tb, Gd, and Er.

1 6. A method for producing a high brightness luminescent material as described in
2 one of Claims 1-5, wherein:

3 said high brightness luminescent material is a BAM type luminescent material
4 represented by $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}$.

1 7. A method for producing a high brightness luminescent material as described in
2 one of Claims 1-6, wherein:

3 a flux agent or a thickener is added to said water-based solvent solution.

1 8. A method for producing a high brightness luminescent material as described in
2 Claim 7, wherein:

3 NH_4BF_4 is added as said flux agent.

1 9. A high brightness luminescent material obtained by a method for producing a
2 high brightness luminescent material as described in one of Claims 1-8.

1 10. A high brightness luminescent material as described in Claim 7, wherein:
2 said high brightness luminescent material is excited by vacuum ultraviolet
3 radiation.